AMSAT News Service Weekly Bulletins
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Posted: Sun, Aug 20, 1989 3:18 PM GMT Msg: EGIJ-4022-1375
From: DCOWDIN
To: IS
CC: W1AW
Subj: $ANS-232 (PLEASE USE THIS ONE!)

SB ALL @ AMSAT $ANS-232.01
AO-13 MODE S WORKING PERFECTLY

HR AMSAT NEWS SERVICE BULLETIN 232.01 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 20, 1989
TO ALL RADIO AMATEURS BT

Strong AO-13 Mode S Signals Heard With "Normal" Mode B Uplink Power Levels

As reported last week in a AMSAT News Service (ANS-224.01) bulletin, Peter Guelzow (DB2OS) with the assistance of ON6UG, G2BFO, and DF5DP, was able to figure out a way to shut down the Mode S beacon on OSCAR-13 during normal pass-band communications on the Mode S transponder. From the very beginning the Mode S transponder's beacon was designed to shut off when the transponder operations commenced. However, until recently this would not occur and those who wanted to use Mode S had to "push" their signals past the beacon using enormous amounts RF output power on 70cm. But with Peter's reprogramming of the Integrated Housekeeping Unit (IHU) to now turn off the beacon auto-matically, Bill McCaa (K0RZ) reports that with normal Mode B uplink power levels it is now possible to bring down an excellent signal on the Mode S transponder. Bill points out that in his testing he had excellent signals using 300-500 watts EIRP using his own Mode B uplink capability. On the downlink his signals were 10 to 15 dB above the noise floor using a 4 foot diameter dish and a 1 dB NF pre-amplifer. Bill would also like to remind OSCAR-13 users of the passband limits on the Mode S transponder. The uplink for Mode S extends from 435.471 MHz to 435.507 MHz. The corresponding downlink on Mode S starts at 2400.711 MHz to 2400.747 Mhz. AMSAT salutes the efforts of all those who were involved in getting the Mode S tranponder working properly. AMSAT encourages all OSCAR-13 users to take advantage of this new "resource."

/EX
SB ALL @ AMSAT $ANS-232.02
MICROSAT LAB GROUND TEST STATION

HR AMSAT NEWS SERVICE BULLETIN 232.02 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 20, 1989
TO ALL RADIO AMATEURS BT

Two Complete Ground Test Stations Installed At The MICROSAT Lab

On Sunday August 10th two complete PSK packet stations were installed in the AMSAT-NA MICROSAT Lab located in Boulder, CO. The task of integrating the tranceivers, computers, and building and testing the TAPR PSK demodulators, fell on the shoulders of AMSAT-NA Area Coordinator for Colorado, Jim White (WD0E). These two complete stations will be used for testing the MICROSATs while they are in the Lab and also during thermal vacuum testing. Later, the two stations will be taken by the AMSAT-NA Launch Preparation Team to Kourou, French Guiana in October and be will used to checkout the spacecraft and make any last minute software updates. Since four spacecraft are being built in parallel and because redundancy is needed at the launch site, Jim felt that it was necessary to have two complete stations. The stations consist of a pair

of 2M/70cm multi-mode Kenwood 711/811 tranceivers, MFJ 1270 TNC-2, TAPR PSK modems, two XT class computers with monitors, and an assortment of "rubber duck" antennas, dummy loads, miscellaneous cabling, and power supplies. Also, Jim had to modify the TNC's to allow for a direct connection to the MICROSAT flight computers so software uploading and testing can be accomplished without having to use the tranceivers. Many of the visitors to the MICROSAT Lab in Boulder, CO are immediately impressed with the ground station assembled by Jim. After the launch, this equipment will be used by AMSAT ground-command stations to monitor telemetry and perform daily "housekeeping" chores. AMSAT-NA would like to express its appreciation to Kenwood for donating their fine tranceiver pair to the MICROSAT program. Thanks are also in order to Heathkit/Zenith Data Systems who donated a pair of their XT-class computers. Other equipment donations came from MFJ with their TNC-2's (MFJ-1270's), TAPR for the PSK demodulators, and an assortment of "odd-and-ends" from Gateway Electronics of Denver. Without these generous donations of essential equipment to the amateur satellite program, AMSAT-NA would have to focus its scarce resources to procuring this equipment instead of concentrating on building spacecraft. Once again, AMSAT-NA wants to acknowledge Jim White for the excellent job he has done in putting these stations together and the many fine manufacturers who have helped to make the MICROSAT ground test/command stations possible.

/EX
SB ALL @ AMSAT $ANS-232.03
AMSAT SHORT BURSTS

HR AMSAT NEWS SERVICE BULLETIN 232.03 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 20, 1989
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AMSAT Short Bursts

The following is the latest OSCAR-13 operating schedule. Please post this in a convenient place in your hamshack for quick reference.

AO-13 Transponder Schedule
16Aug89 until 16Nov89
BLON/BLAT 210/0

Mode B: MA 003 to MA 160
Mode JL: MA 160 to MA 200
Mode B: MA 200 to MA 240
Off: MA 240 to MA 003
Mode S: MA 210 to MA 222

Through the efforts of Sumio Nakane (JH3BJN), AMSAT-NA has received the following operating schedule for FUJI-OSCAR-12 for the next few months:

| DATE | MODE | OPERATING PERIOD |
|---|---|---|
| 08/25/89 | JD | 00:39 UTC until 08:51 UTC |
| 08/27/89 | JD | 00:53 UTC until 09:04 UTC |
| 09/02/89 | JA | 22:37 UTC until 06:49 UTC on 09/03/89 |
| 09/05/89 | JA | 21:57 UTC until 06:00 UTC on 09/06/89 |
| 09/08/89 | JD | 19:15 UTC until 03:27 UTC on 09/09/89 |
| 09/13/89 | JA | 18:48 UTC until 03:00 UTC on 09/14/89 |
| | PLEASE NOTE: NO FO-12 OPERATION FROM SEPT. 15TH TO SEPT. 25TH DUE TO SOLAR ECLIPSES! | |
| 09/26/89 | JA | 15:12 UTC until 23:24 UTC |
| 09/30/89 | JD | 21:50 UTC until 12:44 UTC on 10/01/89 |
| 10/06/89 | JD | 20:29 UTC until 11:23 UTC on 10/07/89 |
| 10/10/89 | JA | 10:42 UTC until 18:54 UTC |

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de DB2OS  01May89:   ***  AO-10 TRANSPONDER SCHEDULE ***
                          14Jul89 to 01Sep89

                    Mode-B  : from  MA 000 to MA 255
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AMSAT-NA is soliciting papers for presentation at and/or publication in the proceedings of its 1989 Space Symposium. Areas of interest include research, development, engineering, funding, construction, management and operation of OSCAR (Orbiting Satellite Carrying Amateur Radio) communications and scientific spacecraft and associated communications networks. Submissions or questions should be forwarded to: Ralph Wallio, W0RPK, CITS Chairman-AMSAT'89, 1250 Highway G24, Indianola, IA 50125. Or you can reach Ralph at the following "land-line" numbers: Home:(515) 961-6406 or Office: (515) 224-8034. On packet-radio you can send him messages via packet BBS W0AK. Also, if you would like to receive a "information" packet about the AMSAT-NA Space Symposium to be held on November 3-6th of this year in Des Moines, IA, please send Ralph a s.a.s.e. with one unit of postage.

WB6LLO suggest that those wishing to experiment with packet on AO-13 should look for him using PSK on the following frequencies:

Mode B-145.870 down, approx. 435.530 up

Mode J-435.950 down, approx. 144.460 up

WB6LLO mentions that if you are having difficulty "connecting" with him that you can meet him up 10 KHz for a voice contact, that is, on Mode B at 145.880 MHz or on Mode J at 435.960 MHz

/EX

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Posted: Sun, Aug 20, 1989  10:06 PM GMT             Msg: DGIJ-4022-1892
From:   BMCGWIER
To:     is, paclist
Subj:   MICROSAT UPDATE

SB ALL @ AMSAT  $ANS-232.04
MICROSAT PROJECT UPDATE,I

HR AMSAT NEWS SERVICE BULLETIN 232.04 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 20, 1989
TO ALL RADIO AMATEURS BT
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AMSAT Microsat Project Update

Major progress is reported this past week on all fronts in the Microsat project. The most troubling problems faced by the engineering teams have been the incredibly complex computer model we have chosen for the mission. The past seven days saw a working flight computer go into operation and plans for finishing out the remaining computers are being laid into place. A fine team of people at Qualcomm, Inc. in San Diego consisting of

Franklin Antonio N6NKF
Tom Lafleur KA6IQA
Mike Brock WB6HHV

all from Qualcomm along with major Microsat/UOSAT software developers

Skip Hansen WB6YMH
Harold Price NK6K

from Quadron Service Corp.,

Paul Williamson KB5MU, a local amateur, SANDPAC president

Lyle Johnson, WA7GXD, TAPR and AMSAT member and designer of the flight CPU along with

Chris Williams, WA3EPD
Bob Argyle

from Weber State who came with the Webersat experiment module saw the first flight computer in full operation. By Sunday afternoon, Aug. 20, CCD camera pictures were being shot and sent `down' through the AX.25 software incorporated in the kernal operating the spacecraft CPU. All 8 megabytes of flight memory boards have now been debugged and the flight computer has seen several days of operation without a failure. The memory boards, packing 8 megabytes of memory in a few cubic inches, have passed extremely rigorous tests after minor patches were made to the boards to take care of manufacturing errors. The spacecraft software kernal has been excercised and the control hardware, known to us as the AART board, which is a little local area network (LAN) has been excercised and has successfully controlled the camera module and experiments. The approach to software for this spacecraft, which was to choose a commercial kernal, suitably modified for the spacecraft and to write code in a standard high level language were also proven. It took less than an hour from start to finish to integrate the kernal and the application controlling the camera and to have it sending down pictures on the AX.25 link.

(continued)

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SB ALL @ AMSAT $ANS-232.05
MICROSAT PROJECT UPDATE,II

HR AMSAT NEWS SERVICE BULLETIN 232.05 FROM AMSAT HQ
SILVER SPRING, MD AUGUST 20, 1989
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AMSAT Microsat Project Update, II

In Boulder, Co. at the clean room and AMSAT labs, the main body of the satellites proceeded toward final integration. Many people were there in force led by AMSAT VP engineering, Jan King, W3GEY in putting the main parts of the satellite into the final state. Many milestones have been reached; so many that we will list them in summary form only.

All transmitters with the exception of the back up transmitter for DOVE are closed out, functioning as planned. There is a minor instability in the backup DOVE transmitter that will be solved in the next few days.

The first complete receiver from W3IWI and W4PUJ has been received in Boulder. W3IWI reports that the second will be shipped on Monday and the last of the four receivers will be shipped to Boulder for integration on Wednesday.

All four of the vitally important Battery Charge Regulators from the ARRL lab team led by KE3Z, Jon Bloom, have been integrated with the batteries supplied by the team led by Larry Kayser, VE3PAZ and the functionality is verified.

All solar arrays are finished and the top plates are finished.

All antennas are finished and the matching networks are all tuned. The worst case mismatch yields a 1.05 to 1 SWR.

All the IR sensors are mounted.

The LUSAT  morse beacon experiment is finished and is totally integrated into its module.

All AART boards (the LAN control network for all modules) are finished and functionality verified.

N4HY, Brooks KB2CST and Pat KA2MOV are finished with the DOVE experiment. Brooks Van Pelt, KB2CST is finished with the 68HC11 loader which will be flown to control the experiments in the DOVE box.  This unit will be shipped this coming week to Boulder for integration into the module. The S band transmitters are already mounted in the box along with a bare DOVE board, shipped earlier in the week for fit checking.

Jan reports that the last items needed will be manufactured not later than Wednesday.

Bob, N4HY will travel to Boulder on August 27 to begin two weeks of extensive testing of all satellites and finalizing of the control and telemetry software and to prepare for thermal vacuum tests at Martin Marietta which begin on September 9 and last for four days.

Expect weekly updates from now until launch which is now scheduled for November 10 of this year.

/EX